

Serial No. **10/025,854**

Docket No. **SCH-0007**

Amdt. dated December 12, 2005

Reply to Office Action of August 10, 2005

REMARKS

By the present response, Applicants have canceled claim 9 without disclaimer. Further, Applicants have amended claims 1, 8, 11, 12, 15, 16, 18 and 19 to further clarify the invention. Claims 1-8 and 10-21 remain pending in the present application.

In the Office Action dated August 10, 2005, the Examiner has rejected claim 1 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,729,536 (Doshi et al.) in view of U.S. Patent No. 6,873,689 (Butler et al.). Claim 2 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,658,037 (Kramer et al.). Claim 3 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Butler in view of Kramer and further in view of U.S. Patent No. 5,953,339 (Baldwin et al.) and U.S. Patent No. 6,545,425 (Victor). Claim 5 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi et al. in view of Butler et al., Kramer et al. and Victor. Claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi, Butler, Kramer, Baldwin and further in view of U.S. Patent No. 5,390,198 (Higgins). Claims 8-10 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of U.S. Patent No. 6,583,737 (Schrödinger) and further in view of Victor and Butler.

Claims 11 and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Schrödinger, Victor and Butler. Claims 13 and 14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Schrödinger, Victor, Butler and

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Higgins. Claims 15 and 17 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Schrödinger in view of Kramer, Victor, U.S Patent No. 5,867,490 (Campanella) and Butler. Claim 16, 18 and 19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Schrödinger, Kramer, Victor, Campanella, Butler and Baldwin. Claims 20 and 21 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Schrödinger, in view of Kramer, Victor, Campanella, Butler and Higgins.

Moreover, the Examiner indicates that claim 4 is objected to but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

Applicants thank the Examiner for indicating that claim 4 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.

35 U.S.C. §103 Rejections

Claim 1 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Butler. Applicants respectfully traverse this rejection.

Doshi discloses four stages of digital cellular architecture which reuse much of the existing voice infrastructure while allowing graceful introduction of data and integrated voice/data services over industry standard, low cost platforms. First, a separate ATM-based infrastructure is introduced that supports data services. A new data call control is introduced on

industry standard hardware platforms using object oriented and modular programming. Second, ATM is introduced at radio ports and call control functions are migrated to the new ATM-based call control platforms. Third, vocoders are introduced at the DCS. Fourth, the cellular functions of the legacy cellular switch are phased out and replaced by the ATM-based target architecture.

Butler et al discloses a voice processing system having a first interface for receiving telephone calls from the PSTN and application software for processing received PSTN telephone calls. The voice processing system supports an API to allow the first interface to inform the application software of the presence of the call. The voice processing system further has a second interface for receiving telephone calls from an IP network, and a signaling subsystem for routing an IP call from the second interface to the application software. This signaling subsystem uses the same API as is used to inform the application software about the PSTN calls. Therefore, it is transparent to the application software whether an incoming call is received from the IP network rather than the PSTN.

Regarding claim 1, Applicants submit that none of the cited references, taken along or in any proper combination, disclose, suggest or render obvious the limitations in the combination of this claim of, *inter alia*, an interface between an ATM network and a PSTN that includes a time division multiplex (TDM) bus that communicates a voice traffic signal between the ATM interface and the vocoder. Doshi et al. does not disclose or suggest these limitations in the claims of the present application. Doshi merely relates to a progression of cellular system architectures

that allow voice and data traffic to be gradually migrated from the legacy circuit/packet-based digital cellular infrastructure to a target ATM-based cellular infrastructure. The Examiner admits that Doshi does not disclose or suggest these limitations but asserts that Butler discloses these limitations at column 1 lines 60-62. However, these portions of Butler merely disclose that typically a voice processing system incorporates an internal TDM bus to coordinate its telephone channels where each is allocated a time slot on the bus. However, this is not a TDM bus that communicates a voice traffic signal between the ATM interface and the vocoder, as recited in the claims of the present application. Butler et al. does not disclose or suggest anything related to a TDM bus between an ATM interface and a vocoder that communicates a voice signal to the PSTN. The disclosure in Butler et al. of a TDM bus coordinating telephone channels does not disclose or suggest these limitations in the claims of the present application.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of claim 1 of the present application. Applicants respectfully request that this rejection be withdrawn and that this claim be allowed.

Claim 2 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Butler, Kramer and Baldwin. Applicants respectfully traverse this rejection.

Kramer discloses in order to compensate for rate mismatches between near end (receiving) and far end (transmitting) devices, intelligent jitter buffer management is

implemented by apparatus comprising: a data interface for receiving frames from a data network; a jitter buffer for temporarily storing said frames; a detector for detecting frames which satisfy a criteria; and a buffer manager for controlling the frames stored in said jitter buffer based on the condition of said buffer and on frames which satisfy said criteria. The criteria can include silence frames or frames received with errors. The condition can include a high water mark (high threshold), and a low water mark (low threshold). If the far end transmitter transmits at a faster rate than the near end receiver, the jitter buffer will eventually become full beyond the high water mark, in which case frame(s) which satisfy the criteria will be deleted. If the far end transmitter transmits at a slower rate than the near end receiver, the jitter buffer will eventually become depleted below the low water mark, in which case silence frame(s) will be inserted after received silence frames.

Baldwin discloses a digital cellular/personal communications service (PCS) application incorporates a logical link connection (LLC) server. In this approach, there are two ATM connections in the path of an AAL-2 connection: one between a base station and the LLC Server and the other between the LLC Server and a vocoder group. All LLCs from, or to, a given base station use a common ATM connection, irrespective of the vocoder used at the other end. Similarly, all LLCs from, or to, a given vocoder group use a common ATM connection irrespective of the destination base station at the other end. At the LLC Server, LLC packets from many base stations destined for the same vocoder group are extracted and bundled into the

ATM connection between the LLC Server and the destination vocoder group. Similar treatment is given to the packets originating at vocoders and destined for base stations. Thus, each ATM connection between a particular base station and the LLC server and each ATM connection between the LLC Server and a particular vocoder group are used to maximum capacity notwithstanding each ATM connection conveys LLCs to different LLC endpoints.

Regarding claim 2, Applicants submit that this claim is dependent on independent claim 1 and, therefore, is patentable at least for the same reasons noted previously regarding this independent claim. For example, Applicants submit that none of the cited references disclose or suggest where the ATM interface includes a TDM interface that communicates the voice traffic signal with the vocoder over the TDM bus, synchronously with TDM timing.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of claim 2 of the present application. Applicants respectfully request that this rejection be withdrawn and that this claim be allowed.

Claim 3 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Butler and further in view of Kramer, Baldwin and Victor. Applicants respectfully traverse this rejection.

Victor discloses a communications system that includes one or more free space electron switches. The free space electron switch employs an array of electron emitters, where each

emitter is responsive to an RF or optical input signal on an input channel. Each emitter includes a cathode that emits electrons in response to the input signal. Each emitter further includes a focusing/accelerating electrode for collecting and accelerating the emitted electrons into an electron beam. Each emitter further includes an aiming anode that directs the beam of electrons to a desired detector within an array of detectors that converts the beam of electrons to a representative RF or optical signal on an output channel. Each emitter may include a modulating electrode that generates an electric field to modulate data onto the beam of electrons. The communications systems employing the switch can be an ISDN, DSLAM networks, packet routing systems, ADSL networks, PBX systems, local exchange systems, etc.

Regarding claim 3, Applicants submit that this claim is dependent on independent claim 1 and, therefore, is patentable at least for the same reasons noted previously regarding this independent claim. Applicants submit that neither Kramer, Baldwin nor Victor overcome the substantial defects noted previously regarding Doshi and Butler. For example, Applicants submit that none of the cited references disclose or suggest where the multiplex/demultiplex unit is further adapted to convert first parallel signals received from the memory interface into a first serial signal, convert a second serial signal received from the TDM interface into second parallel signals, and output the converted second parallel signals to the memory interface.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of

claim 3 of the present application. Applicants respectfully request that this rejection be withdrawn and that this claim be allowed.

Claim 5 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Butler and further in view of Kramer and Victor. Applicants submit that this claim is dependent on independent claim 1 and, therefore, is patentable at least for the same reasons noted previously regarding this independent claim. Applicants submit that neither Kramer nor Victor overcome the substantial defects noted previously regarding Doshi and Butler. For example, Applicants submit that none of the cited references disclose or suggest where the vocoder comprises: a TDM interface connected to the TDM bus, the TDM interface synchronizes timings of the voice traffic signal, communicated with the ATM interface, with TDM timing and converts a serial voice traffic signal into parallel voice traffic signals; a memory that stores the parallel voice traffic signals from the TDM interface and the voice signal from the PSTN; a memory interface that accesses the memory to read data from or write the data to the memory; and a CPU that periodically reads first voice data stored in the memory, transfers the read first voice data to a digital signal processor (DSP), and stores second voice data transferred from the DSP in the memory.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of

claim 5 of the present application. Applicants respectfully request that this rejection be withdrawn and that this claim be allowed.

Claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Butler and further in view of Kramer, Baldwin and Higgins. Applicants respectfully traverse this rejection.

Higgins discloses an error control decoder for use in decoded encoded with an M-ary convolutional code. The error control decoder includes a branch metrics module that determines differences between the correlation values of each of eight possible symbols used to represent data encoded in the largest of the correlation values. An add-compare-select module determines path metric values for each of 64 states by adding selected branch metric values to prior state metrics for the two possible paths that lead to a current state metric. The minimum path metric of the two is then assigned as a new state metric, and a logic level identifying the selected path metric is stored in a path history module.

Regarding claim 6, Applicants submit that this claim is dependent on independent claim 1 and, therefore, is patentable at least for the same reasons noted previously regarding this independent claim. Applicants submit that neither Kramer, Baldwin nor Higgins overcome the substantial defects noted previously regarding Doshi and Butler. For example, none of the cited references disclose or suggest where the ATM interface further comprises a most significant bit (MSB) comparator that latches a first MSB of data stored in the memory, compares the latched

first MSB with a second MSB generated to read the stored data, and outputs the generated second MSB as a read MSB if the first and second MSBs are the same, thereby preventing a contention from occurring between a read operation and a write operation of the memory.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of claim 6 of the present application. Applicants respectfully request that this rejection be withdrawn and that this claim be allowed.

Claim 7 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Butler and Higgins. Applicants respectfully traverse this rejection and submit that claim 7 is dependent on independent claim 1 and, therefore, is patentable at least for the same reasons noted previously regarding this independent claim. Applicants submit that Higgins does not overcome the substantial defects noted previously regarding Doshi and Butler. For example, Applicants submit that none of the cited references disclose or suggest a clock generator that provides a plurality of clock signals for a frame synchronization and packet synchronization to the ATM interface and the vocoder.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of claim 7 of the present application. Applicants respectfully request that this rejection be withdrawn and that this claim be allowed.

Claims 8-10 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Schrödinger and Victor and Butler. Claim 9 has been canceled. Applicants respectfully traverse these rejections as to the remaining pending claims.

Schrödinger discloses compensating for propagation differences between n serial data streams each transmitted over parallel optical lines. Data that can be transmitted via the n serial data streams are configured as m -bit words. The device has n regeneration devices in which data of the data stream can be regenerated. A data output and a clock pulse output of the regeneration devices are connected to a propagation time control device so that the regenerated data and the regenerated clock pulse can be transmitted to a data input or to a clock pulse input of the propagation time control devices. The propagation time control devices each have a demultiplexer for dividing the regenerated data as well as the regenerated clock pulses with a ratio of 1 ($x \cdot m$), and each have an alignment device for distributing the divided regenerated data on $x \cdot m$ parallel data outputs of the propagation time control devices.

Regarding claim 8, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of this claim of, *inter alia*, communicating data between an ATM network and a PSTN that includes demultiplexing a demultiplexed stream of first parallel data units from the ATM network into multiple streams of second parallel data units, or communicating each of these streams of first serial data through a TDM bus in an assigned timeslot, or generating a voice

signal from each of these streams of first serial data received through the TDM bus, or transmitting each of the generated voice signals to a destination through the PSTN.

The Examiner asserts that Schrödinger discloses demultiplexing a multiplex stream of first parallel data units into multiply streams of second parallel data units, at column 2 lines 11-31. However, these portions of Schrödinger merely disclose details regarding a device for compensating for propagation delay differences between n serial data streams transmitted via parallel optical lines that includes n regeneration apparatus, and propagation delay control apparatus. Schrödinger does not disclose or suggest anything related to communicating data between an ATM network and a PSTN as recited in the claims of the present application. Further, the cited portions of Schrödinger do not disclose or suggest demultiplexing a multiplexed stream of first parallel data units from the ATM network into multiple streams of second parallel data units.

The Examiner admits that Schrödinger does not disclose or suggest communicating each of the streams of first serial data through a TDM bus but asserts that Butler discloses these limitations in column 1 lines 60-62. However, as noted previously, these portions of Butler do not disclose or suggest communicating data (that has been received and processed from an ATM network) through a TDM bus in an assigned timeslot, as recited in the claims of the present application. These portions merely disclose that a processing system incorporates a TDM bus to coordinate telephone channels.

Further, the Examiner admits that Schrödinger does not disclose or suggest generating a voice signal from each of the streams of first serial data received through the TDM bus, or transmitting each of the generated voice signals to a destination through the PSTN, but asserts that Butler discloses these limitations in column 3, lines 31-38. However, these portions of Butler merely disclose that gateway devices allow telephone calls to be made from IP phones to PSTN phones and that a gateway should be able to synchronize two TDM buses. This is not generating a voice signal from each of these streams received through a TDM bus, as recited in the claims of the present application. Further, these portions do not disclose transmitting each of the generated voice signals to a destination through the PSTN. As noted previously, the limitations in the claims of the present application relate to communicating data between an ATM network and a PSTN through a TDM bus. In contrast, Butler relates to a telephone call from an IP phone to a PSTN using a gateway. In contrast to the Examiner's assertions, Butler does not disclose or suggest that the gateway includes a TDM bus but discloses that the gateway can synchronize to TDM buses (e.g., external to the gateway).

Regarding claim 10, Applicants submit that this claim is dependent on independent claim 8 and, therefore, is patentable at least for the same reasons noted previously regarding this independent claim. For example, Applicants submit that none of the cited references disclose or suggest communicating each of the multiple streams of second serial data through the TDM bus in an assigned timeslot.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of claims 8 and 10 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

Claims 11 and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi, Schrödinger, Victor and further in view of Butler. Applicants respectfully traverse these rejections and submit that claims 11 and 12 are dependent on independent claim 8 and, therefore, are patentable at least for the same reasons noted previously regarding this independent claim. Applicants submit that Victor does not overcome the substantial defects noted previously regarding Doshi, Schrödinger and Butler. For example, Applicants submit that none of the cited references disclose or suggest encoding multiple voice signals, received through the public switch telephone network, into corresponding multiple streams of second serial data, or generating ATM packets from the multiplexed stream of fourth parallel data units and transmitting the generated ATM packets through the ATM network.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of claims 11 and 12 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

Claims 13 and 14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Doshi in view of Schrödinger, Victor, Butler and Higgins. Applicants respectfully traverse these rejections.

Higgins discloses a soft decision viterbi decoder for M-ary convolutional codes that includes an air control decoder for use in decoding signals encoded with an M-ary convolutional code and a method for decoding such a code.

Regarding claims 13 and 14, Applicants submit that these claims are dependent on independent claim 8 and, therefore, are patentable for at least for the same reasons noted previously regarding this independent claim. Applicants submit that Higgins does not overcome the substantial defects noted previously regarding Doshi, Schrödinger, Victor and Butler. For example, Applicants submit that none of the cited references disclose or suggest outputting the generated second address bit for use in a subsequent memory read operation if the first and second address bits have the same value, to prevent bus contention between a memory write operation and the memory read operation.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of claims 13 and 14 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

Claims 15 and 17 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Schrödinger in view of Kramer, Victor, Campanella and Butler. Applicants respectfully traverse these rejections.

Regarding claim 15, as noted previously, none of the cited references disclose or suggest communicating data between an ATM network and a PSTN through a TDM bus. Further, none of the cited references disclose or suggest a communication gateway between an ATM network and a PSTN that includes a PSTN interface that transmits generated voice signals to a destination at the PSTN, and an ATM interface that generates ATM packets and transmits the generated ATM packets to the ATM network. The cited references do not disclose or suggest anything related to a communication gateway that transmits information between a PSTN network and an ATM network over a TDM bus.

Regarding claim 17, Applicants submit that this claim is dependent on independent claim 15 and, therefore, is patentable at least the same reasons noted previously regarding this independent claim. For example, Applicants submit that none of the cited references disclose or suggest the serial to parallel converter communicating each of multiple streams of second serial data through the TDM bus in an assigned timeslot.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of

each of claims 15 and 17 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

Claims 16, 18 and 19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Schrödinger in view of Kramer, Victor, Campanella, Butler and further in view of Baldwin. Applicants respectfully traverse these rejections and submit that these claims are dependent on independent claim 15 and, therefore, are patentable at least for the same reasons noted previously regarding this independent claim. For example, Applicants submit that none of the cited references disclose or suggest the gateway including multiple vocoders that each generate one of the generated voice signals from a separate one of the streams of first serial data received by the serial to parallel converter, or multiple vocoders that encode multiple voice signals received through the PSTN interface into the corresponding multiple streams of second serial data.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of claims 16, 18 and 19 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

Claims 20 and 21 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Schrödinger in view of Kramer, Victor, Campanella, Butler and in further view of Higgins. Applicants respectfully traverse these rejections and submit that claims 20 and 21 are dependent

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on independent claim 15 and, therefore, are patentable at least for the same reasons noted previously regarding this independent claim. For example, Applicants submit that none of the cited references disclose or suggest a gateway that includes a comparator that compares a first address bit, corresponding to the data stored in the memory, with a second address bit generated for the purpose of reading the stored data, or where the comparator toggles the value of the second address bit if the first and second address bits have different values.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of claims 20 and 21 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

CONCLUSION

In view of the foregoing amendments and remarks, applicants submit that claims 1-8 and 10-21 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned, Frederick D. Bailey, at the telephone number listed below.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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